Remarks

In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

This submission is accompanied by a Request for Continued Examination, a petition for extension of time, and an information disclosure statement. Because the Notice of Appeal was entered on May 21, 2007, this submission is timely. All fees should be withdrawn from Deposit Account 14-1138.

Claim 1 has been amended to recite higher stringency requirements (i.e., structural requirements of the claimed DNA molecule based on hybridization capability) as well as the functional requirements of the encoded delta prime subunit ("cooperate with delta and tau/gamma subunits to form a clamp loader complex"). The latter limitation finds descriptive support in the background of the invention at page 2, line 18 to page 3, line 31. Claims 10 and 11 have been cancelled.

Claims 1, 2, 6-9, and 12-21 are pending. Claims 17-21 stand allowed.

The rejection of claims 1, 2, and 6-16 under 35 U.S.C. §112 (first paragraph), as lacking written descriptive support, is respectfully traversed.

The U.S. Patent and Trademark Office ("PTO") maintains its position that the single species disclosed as SEQ ID NO: 147 (*Thermotoga maritime holB*, encoding delta prime subunit) does not provide descriptive support for the genus as claimed. Applicants respectfully disagree.

Given the recitation of high stringency conditions in claim 1 (hybridization and wash conditions of 5X sodium citrate buffer and at a temperature of 65°C), persons of skill in the art would expect hybridizing nucleic acids to be structurally similar to the nucleic acid sequence of SEQ ID NO: 147, and that the encoded proteins would be structurally and functionally similar. *See EnzoBiochem Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 1327, 63 USPQ2d 1609, 1615 (citing U.S. Patent and Trademark Office "Synopsis of Application of Written Description Guidelines" with approval). Given this rational expectation, persons of skill in the art would also expect related organisms (i.e., from bacterial genus *Thermotoga*) to share functional and structural similarities, including similarities in the structure and function of individual genes.

The reasonableness of that expectation is confirmed by attached Exhibits 1-3. Exhibit 1 is a copy of Genbank Accession CP000702 for *Thermotoga petrophila* RKU-1, which lists the nucleotide and amino acid sequences for a DNA polymerase III subunit designated as "gamma/tau subunits-like." This was identified by BLAST search of the *Thermotoga petrophila* genome using the *Thermotoga maritima* delta prime subunit of SEQ ID NO: 148. A ClustalW amino acid alignment between the *Thermotoga maritima* delta prime subunit of SEQ ID NO: 148 with the *Thermotoga petrophila* delta prime subunit is shown in Exhibit 2 (approximately 95% identity), and an Emboss Align nucleotide alignment between *Thermotoga maritima holB* of SEQ ID NO: 147 with the *Thermotoga petrophila holB* is shown in Exhibit 3 (approximately 95% identity). Both of these alignments were performed by the undersigned attorney using the default settings of the software available from the European Bioinformatics Institute website.

Given the above facts, applicants respectfully submit that the present application provides written descriptive support for the claimed subject matter. Therefore, the rejection of claims 1, 2, and 6-16 for lack of written description should be withdrawn.

The rejection of claims 1, 2, and 6-16 under 35 U.S.C. §112 (first paragraph) for lack of enablement is respectfully traversed.

It is the position of the PTO that the specification does not provide sufficient guidance for making and using other delta prime subunit-encoding DNA molecules within the scope of the claims. Applicants respectfully disagree.

Because the application adequately describes the presently claimed genus, persons of skill in the art would be fully able to obtain other polynucleotides encoding other delta prime subunits within the claimed genus, and prepare DNA constructs, vectors, and host cells in the manner described in the specification.

The present application provides the nucleotide sequence of *Thermotoga maritima holB* (e.g., SEQ ID NO: 147) and describes how one of ordinary skill can isolate homologs of the disclosed sequence (*see* page 41, line 9 to page 42, line 29), express the delta prime subunit encoded by such homologous *holB* sequences (*see* Example 20, expressing *A. aeolicus* delta prime subunit), and test the encoded delta prime subunit for clamp loader assembly competence (*see* Examples 24 and 25, testing *A. aeolicus* clamp loader assembly) and for clamp loader activity (*see* Examples 26 and 30, testing *A. aeolicus* clamp loader activity).

Thus, one of ordinary skill in the art would have been fully able to make and use DNA molecules and their encoded proteins within the scope of the presently claimed invention.

Moreover, with regard to method 3 for homolog identification, described at page 42, that is precisely the approach used to identify the *holB* homolog shown in Exhibit 1 (attached hereto). For this reason, it should be apparent that the present application fully enables the production and use of other species of *Thermotoga holB* homologs and their encoded delta prime subunits.

For these reasons, applicants submit that the rejection of claims 1, 2, and 6-16 for lack of enablement is improper and should be withdrawn.

In view of all of the foregoing, applicant submits that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

Date: December 21, 2007

/Edwin V. Merkel/
Edwin V. Merkel
Registration No. 40,087

NIXON PEABODY LLP
1100 Clinton Square
Rochester, New York 14604
Telephone: (585) 263-1128
Facsimile: (585) 263-1600